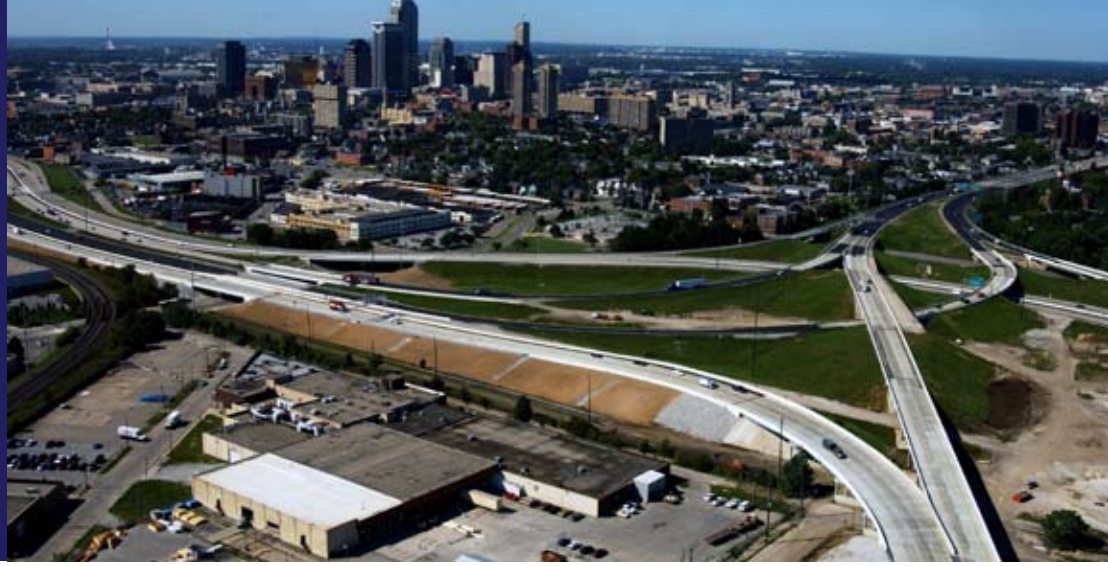

Job well done:
The new and improved routes into and out of Indianapolis, thanks to Hyperfix.

INDIANA Hyperfix: Fast-Track Innovation in Indiana

The Indiana Department of Transportation (INDOT) faced daunting challenges when it planned major improvements along a substantial section of the combined I-65 and I-70 arteries just south of downtown Indianapolis – the lifeblood of the daily commute. The project could easily stretch across two entire construction seasons, with one side of the highway being addressed at a time, including some 33 bridges.

Instead, the entire project was completed in just 55 days – in which the project truly earned its catchy title, "Hyperfix." The project also earned the attention of FHWA's Highways for LIFE program, which advances Long lasting highways using Innovative technologies and practices to accomplish Fast construction of Efficient and safe pavements and bridges.

INDOT's approach to the undertaking's key challenges was simple, if not easy: close down the entire affected stretch of highway and design the project in such a way that the many contractors and subcontractors would be on the job every day, 24 hours a day, seven days a week. That produced a need to provide 175,000 displaced daily drivers with the means to negotiate the commute without turning alternative routes into parking lots. The team supplied places for commuters to park, provided special shuttle buses so they could ride in relaxation, and planned routes for the buses to get commuters to their destinations. In addition, a notable element in the plan called for INDOT and contractors' representatives to meet with as many community stakeholders as possible before construction began.

Media, meetings, and messages became watchwords of the project's critical public awareness component. The team wrapped the public face of the entire project around a catchy brand name: Hyperfix. The name so captured the imagination of stakeholders that it became part of local language and lore, with advertising billboards and radio talk shows proclaiming the need to "Hypermow" the lawn or "Hyperfix" one's thermostat. One citizen actually was inspired to write a song that celebrated the project's advances in words and music.

The extraordinary truth behind the "hyper" tag was that the job, already planned along a super fast track, was completed within just 55 days – 30 days ahead of the most optimistic projections from team engineers. Each day shaved off the construction schedule saved the public approximately $1 million.

When it came time to reopen the combined highway and bridges to traffic, the enthusiastic citizens of Indianapolis, who by now had become believers, organized a huge celebration – a combined block party and stock car rally – to cut the ceremonial ribbon on the $34 million dollar project.

Not DAD, But POP

Working with INDOT from the very beginning of what became Hyperfix was American Consulting, Inc., a local design and engineering firm that accepted the challenge to design a scope of work plan that would accommodate wide ranging stakeholder needs and apprehensions. One of several companies with whom INDOT had an existing relationship, American Consulting "helped make Hyperfix a reality," said J. Bryan Nicol, former INDOT Commissioner.

Nicol observed that new and innovative ways of thinking pervaded planning from the start, notably in keeping the impact on customers' lives front and center. He said, for example, that the old model of State DOTs was the formula known as "DAD," or Design, Announce and Defend. Now, he said, the new formula is more like "POP," or Priority on People, a new way of thinking that helps enlist a community's support long before blasting, drilling, milling, and paving might threaten it. Hyperfix exemplifies Highways for LIFE principles in part because of its recognition that to move construction to rapid completion, owner agencies need to move people to rapid cooperation.

So successful was the entire Hyperfix concept that the Indiana Chapter of the American Council of Engineering Companies honored American Consulting with its Grand Project Award for its pioneering accomplishments on the project.

Concrete Pours: A Dozen a Day

It takes more than good ideas to produce the outstanding results achieved by the Hyperfix team. Weaving paving crews and machinery in and out of 35 miles of roadway and 33 bridges on a 24/7 schedule at a pace that shaves 30 days off the incentivized 85-day schedule speaks of superb scheduling.

Walsh Construction of Chicago was awarded that task. Walsh staff saw that "hyper-management" of the project schedule would allow the Hyperfix team to harness all of its resources and accomplish many tasks simultaneously.

"Most construction jobs are scheduled by the week – this one was scheduled by the hour," said Jeff Datzman, a Walsh Construction bridge superintendent, to a trade publication. "The brunt of the work was getting all 33 bridges done in 55 days so paving machines could do their part."

The result, according to Datzman, was that "About a dozen concrete pours a day were done simultaneously…We had so many different subcontractors working together onsite that if one failed to keep up with the schedule, it literally threw the entire sequence off."

And the crucial factor, as Datzman noted, was the pumping of concrete with a specialized piece of machinery, the Putzmeister 22Z-Meter, which kept the hot concrete continuously flowing to its destination day and night, until the work was done. Aiding the 22Z-Meter was the 46X-Meter, both meeting the challenges of bridgework, slope walls, approach slabs, and road paving.

"One rarely, if ever, sees a pump used for road paving," explained a spokesman for the subcontractor, George's Concrete Pumping, "but it was necessary on this project because of the access problems. The pumps performed brilliantly in handling the low slump, placing 14 inches of concrete on the Interstate in several sections when dumping was impossible because of site congestion."

Handling most of the work were both Putzmeister 42X- and 46X-Meter units, averaging 80-100 yards pumped per hour while pumping a 21 and 2/3-inch slump. In addition, to avoid the heat of the sun, a good deal of the bridgework was poured at night, protecting the new concrete while allowing additional time with which to work the material.

The 22Z-Meter, said Datzman, proved "ideal. Its versatile Z-boom configuration was able to go into those areas beneath bridges, despite only six inches to spare." The machine worked well in the confined spaces to easily manipulate the low slump Indiana Class B mix, a lean blend often difficult to pump.

All in all, Datzman recalled, timing was everything in the success of such a mammoth effort. "It was a huge commitment on everyone's part to maintain tight schedules and meet the final deadline."

The construction schedule itself was ambitious, according to Nicol. The combined I-65 and I-70 highways were closed on May 26, 2003, and repairs ensued on a 24/7 schedule, seven days a week. Pavement removal took place in the first half of the project. After preparing the base for the northbound lanes, the contractor poured concrete and switched efforts to the southbound side. The paving itself required 73,600 square meters of concrete and 31,700 metric tons(35,000 tons) of asphalt.

The contractor earned a $3 million incentive ($100,000 per day) for the 30-days early finish, according to Tim Conarroe, INDOT project engineer. He said that Hyperfix 65/70 actually was Phase 2 of the total project; Phase 1 saw the contractor rehabilitating the interchanges on either end of the project in traditional fashion (one lane at a time), in work lasting from March 28 to May 2, 2003, ensuring reliable access to downtown. There was, in addition, a Phase 3, which added an extra lane on the connecting ramp from eastbound I-70 to southbound I-65, beginning on July 30 and finishing on August 30, 2003.

Traffic Control

Despite fairly universal dread accorded Hyperfix because of the huge scope of work and the possible effect on daily living and commuting, in reality the project was lauded for being well organized and executed according to plan.

Fine-tuning the invaluable Putzmeister.

According to Gerard Mroczka, P.E., INDOT manager of special projects, elements of the traffic control plan included the State's Traffic Management Center, the Indiana State Police, and INDOT's freeway service patrol operators (also known as "Hoosier Helpers"). Downtown commuters were able to use, throughout the duration of the project, all but one of the exits on either end of the closure. He explained, "INDOT directed national and regional traffic onto the construction-free outer beltway (Interstate 465)." He said that beginning 10 miles outside the I-465 beltway and at key downtown locations, INDOT erected the distinctive Hyperfix 65/70 signage directing traffic around the construction zone. The agency also repositioned portable message signs in conjunction with overhead dynamic message signs to convey

real-time information to motorists.

In addition, demand management was utilized by both Indianapolis city officials and by INDOT, encouraging downtown businesses to stagger work hours and to use carpools. INDOT also met regularly with downtown stakeholders to advise on noise concerns and progress.

Gaining, and Keeping, Public Support

Beyond a pioneering concept, innovative design, and dedicated and capable team of construction contractors, Hyperfix attracted the attention of the Highways for LIFE program because project leaders maintained a clear vision that they could attract area motorists and commuters to become a vital part of the team, despite widespread expectations of delays, bottlenecks, and backups.

From the beginning, in fact, planners were aware that gaining and keeping public support anchored the success of this project. The Indianapolis Star, for example, in a March, 2003 article, had warned commuters to prepare for what was expected to be "the worst construction season ever." Thus, to enlist public support meant using every means at hand, ranging from carefully-orchestrated media campaigns and a steady stream of follow-ups, to meetings with concerned home and business owners and commuters – even finding parking places for vehicles whose drivers would ride a fleet of buses the Hyperfix team intended to supply.

The key to the success of the plan was another contractor, a local public relations firm called Hetrick Communications, which provided an overall mass communications campaign and promoted the commuter bus service, dubbed "Hyperfix Park & Ride."

Hetrick knew that it had to reach not only residents of Indianapolis neighborhoods, but also commuters from other areas as well. Information had to flow freely in order to ensure support from various downtown businesses, community organizations, likely tourists, and meeting and event planners (Indianapolis is a major convention destination). The project also needed the support of the national trucking industry. And, since Hyperfix called for detouring traffic to city streets, communication was key for all levels of government involved.

Hetrick, long accustomed to working with transportation engineers and contractors, quickly grasped that an overall name, a "brand identity," for the project was required, something quick and simple and right to the point. Three syllables seemed to say it all: "Hyperfix."

The firm also designed coordinated logos and other graphics for road signage, and, most importantly, a web site that generated a flow of updated information, including specifics about each leg of the project, and each bridge and section of the road. In fact, the website is still online and carries current information such as traffic control updates.

Hetrick met often with local stakeholders, explaining the project's scope to neighborhood associations and community groups, while seeking their opinions and suggestions. "You name it, we probably met with them," said one of the firm's principals to the Indianapolis Business Journal. Representatives of the firm also sat down with a core group that comprised City Hall, INDOT, downtown organizations, and other stakeholders involved in the process, including Indianapolis Downtown, Inc., and the Indianapolis Convention and Visitors Association.

Still, there was more to be done. The company sent hundreds of letters to trucking companies and associations across the country and posted maps and other details in rest areas and truck stops throughout Indiana and in contiguous states.

Local media responded well to the Hyperfix effort, running news and features on radio and television and in newspapers, creating a strong cumulative effect. News outlets also plugged into the Hyperfix web site.

Then followed songs and parodies, talk radio anecdotes, and discussion of ways to "Hyperfix" anything that needed repairs until "Hyperfix" became a community catch-phrase and byword. "You can't pay for advertising like that," said a spokesman for Hetrick.

An important lesson had been learned. "You can't just go out and say, 'Next Monday we're going to shut down the Interstate.' It takes a concerted effort to get that word out," Nicol recalled.

Hyperfix as Catalyst

"Hyperfix has been a catalyst for many good things," noted Nicol. He said that Indianapolis retained the many street improvements that had been made before Hyperfix could begin, creating a permanent improvement in traffic flow. Buses still employ software that changes traffic signals to lengthen green lights. Even bus ridership continues above pre-Hyperfix levels. And because the public responded so well to the strenuous efforts to gain its support, INDOT may use the name again for projects of this magnitude.